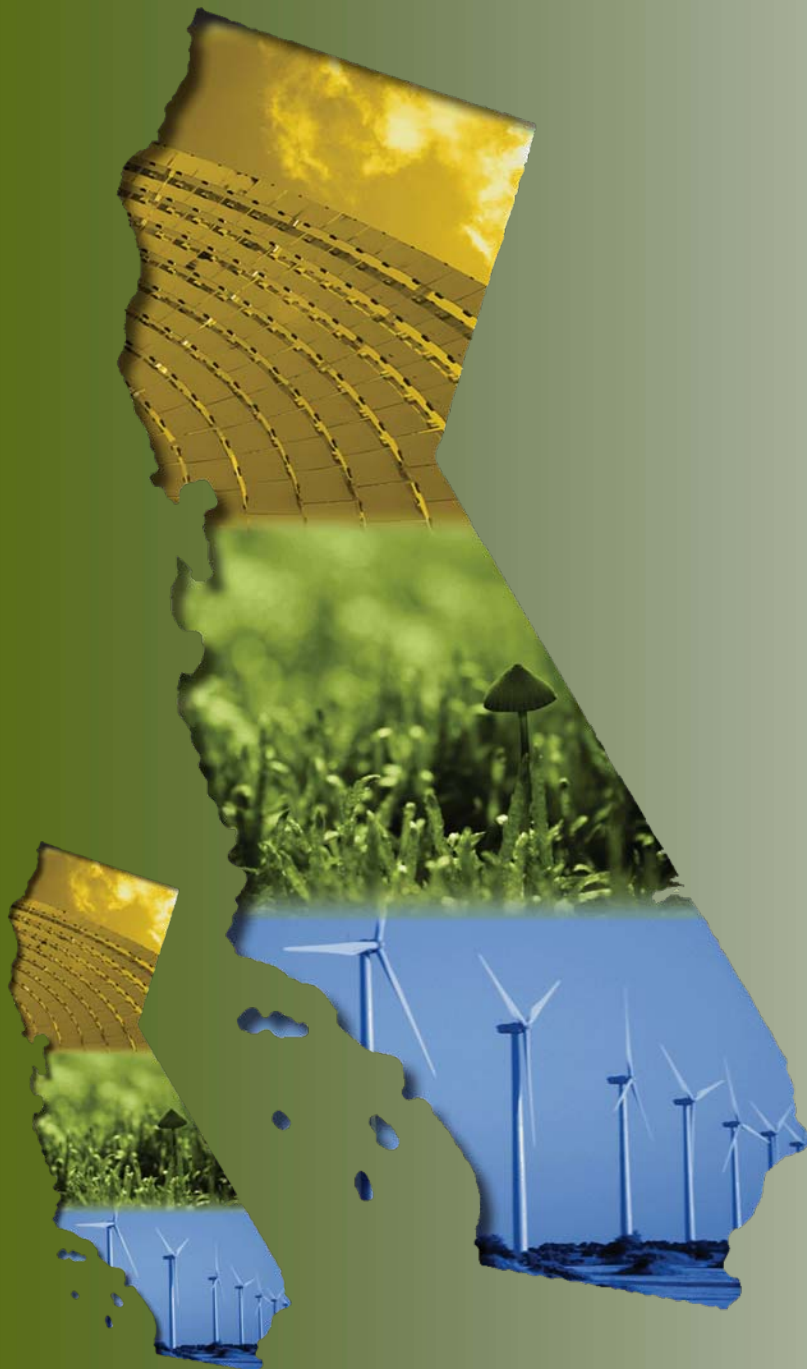


Interface Between Climate Change Science and Policy in California

James D. Boyd, Vice Chair
California Energy Commission

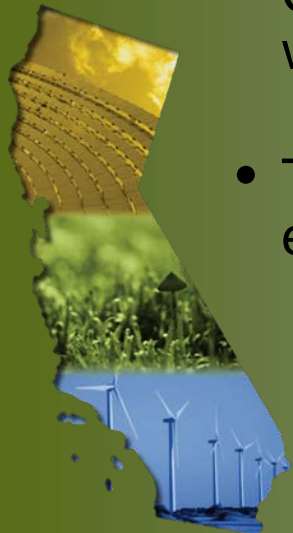


September 8th, 2008

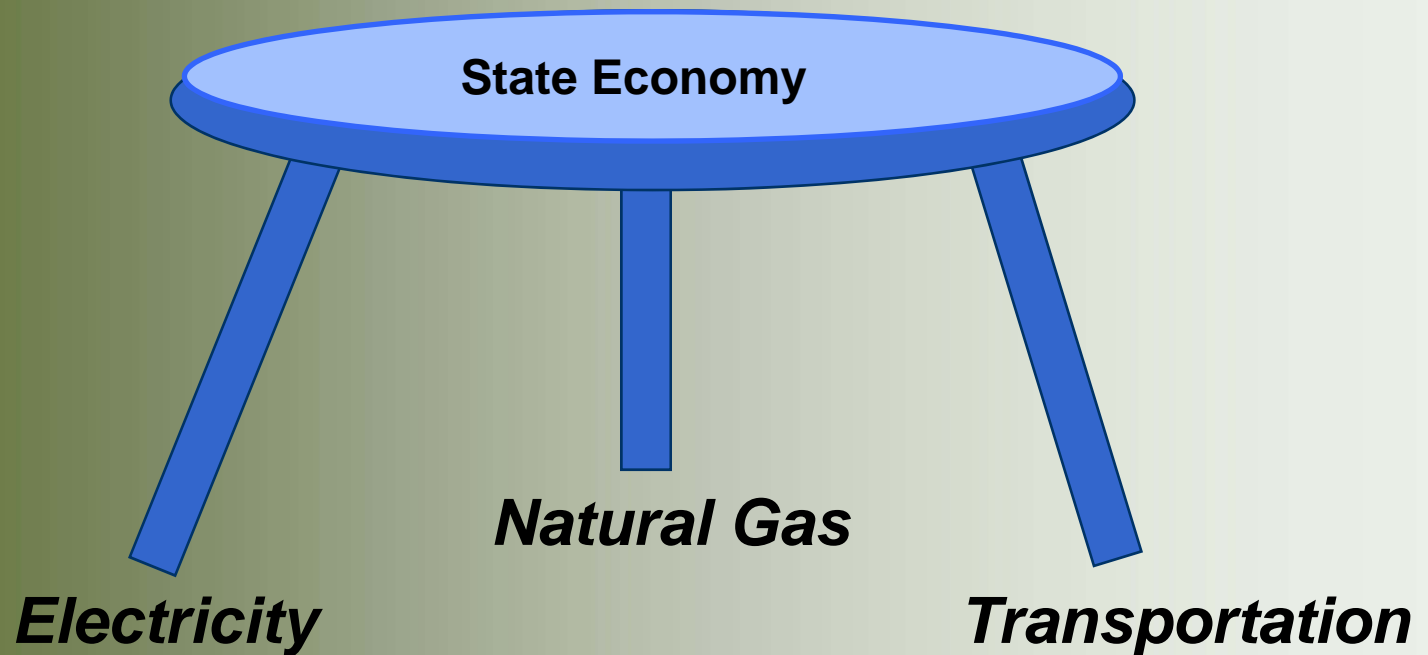


California is a Nation State

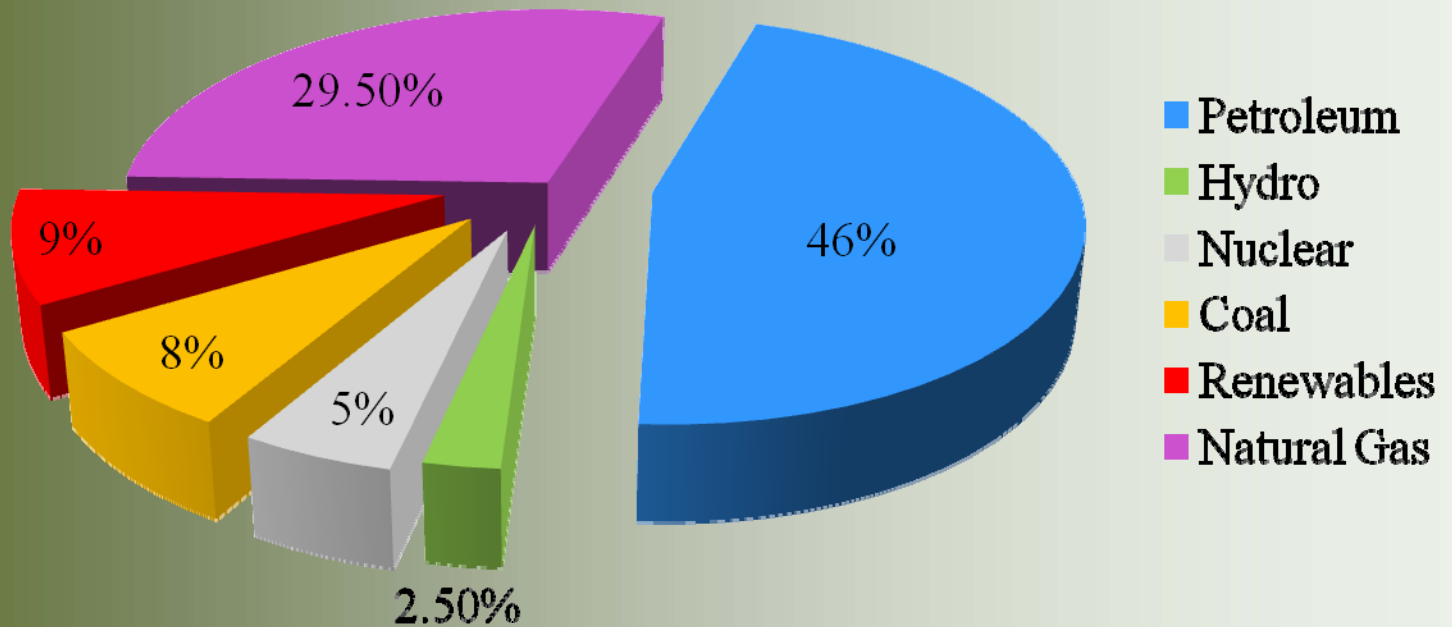
- The eighth largest economy in the world; Gross State Product of \$1.6 trillion
- Population of 37 million Californians, 27 million motor vehicles
- Second largest emitter of greenhouse gases in the U. S. and twelfth largest in the world, releasing 500 metric tons per year
- California remains the third largest gasoline consumer in the world, ranking behind the U. S. and China.
- The transportation sector is the single largest source of GHG emissions, approaching 40 percent of the statewide total.



Energy is Critical to the State's Economy



California's Primary Energy Sources



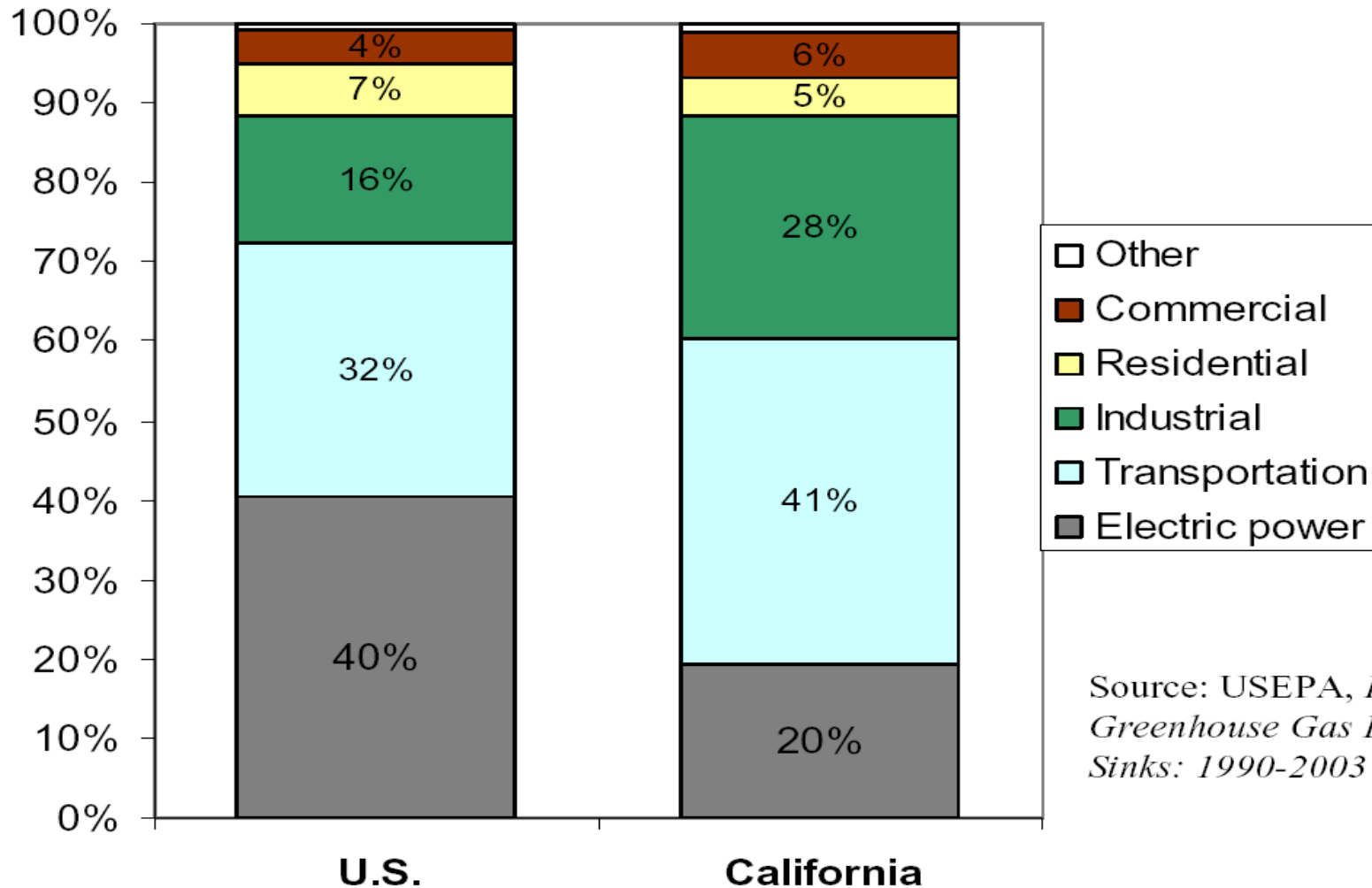
2008 Climate Change Conference

Major State Policy Drivers

- Energy Security
- Environmental Quality
- Fuel Supply and Price Volatility
- Global Climate Change

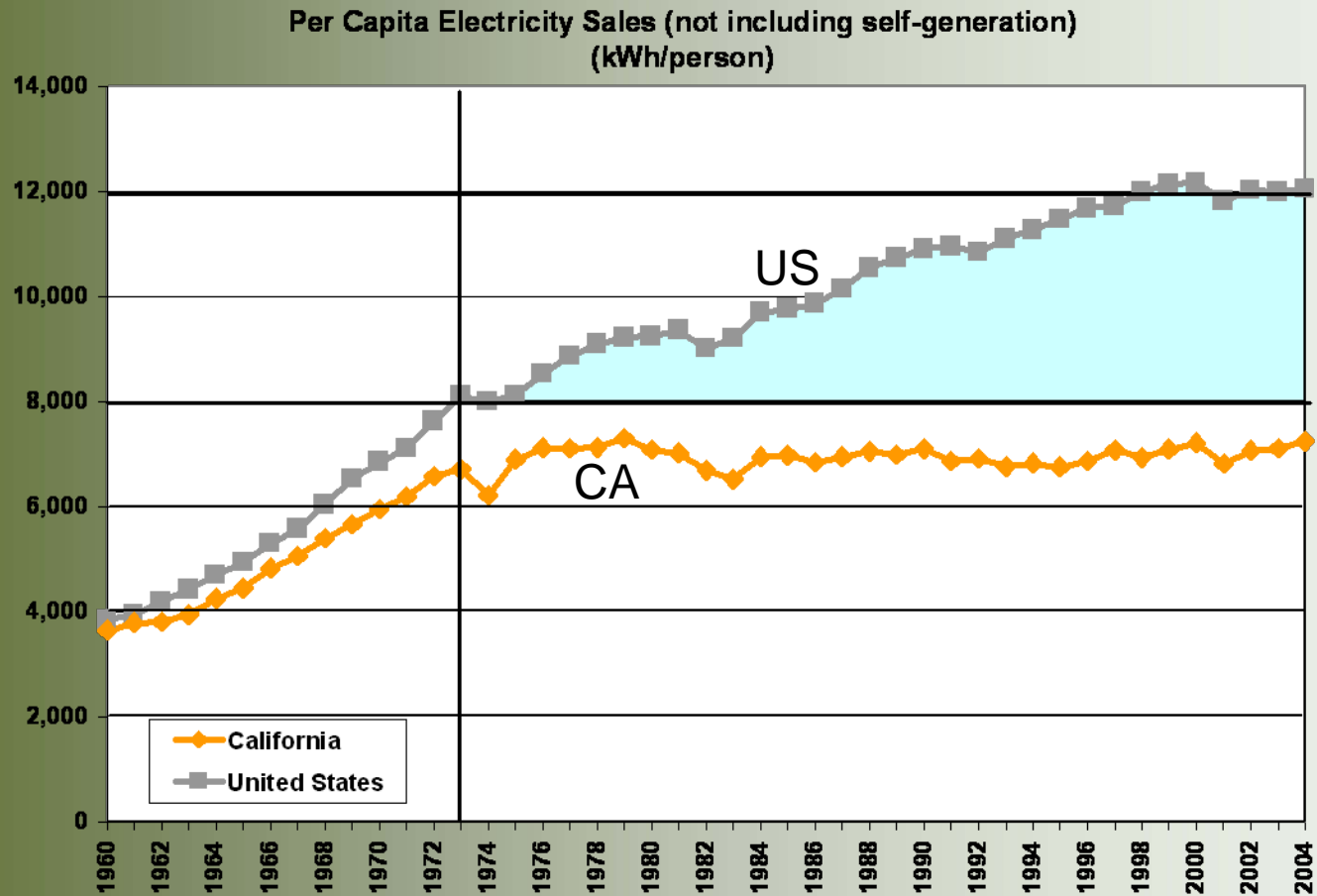


Optimal GHG Reduction--Regional Differences Are Important



Source: USEPA, *Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2003*

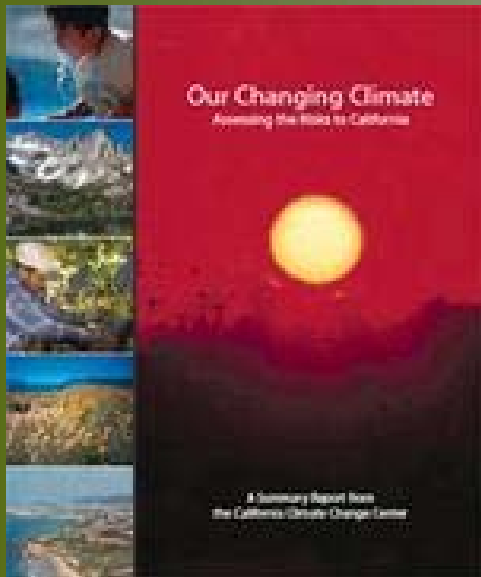
California Has Benefitted From Progressive Energy Policies



2008 Climate Change Conference

The Energy Commission's Role in Guiding Climate Change Policy

- Integrated Energy Policy Report
- Policy guidance to support implementation of AB-32
- Chair of Climate Action Team Research Subgroup
- The CEC Climate Change Research Center has sponsored research in the areas of climate modeling, GHG inventory, emission reductions and impacts and adaptation



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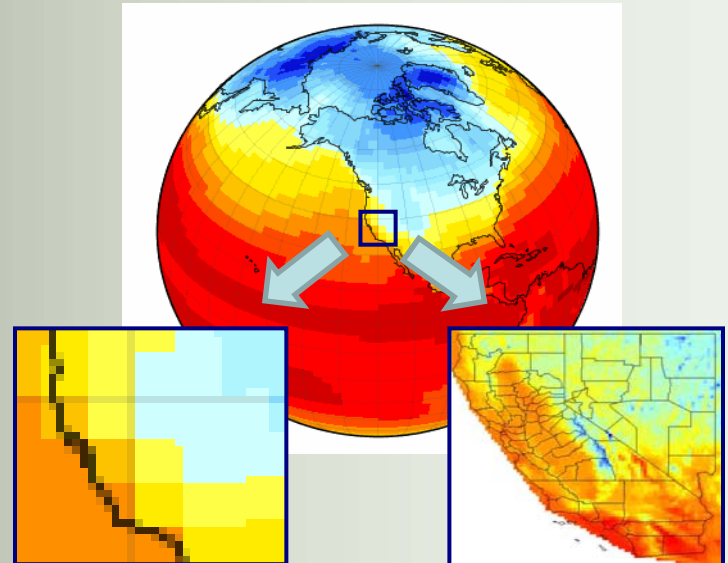
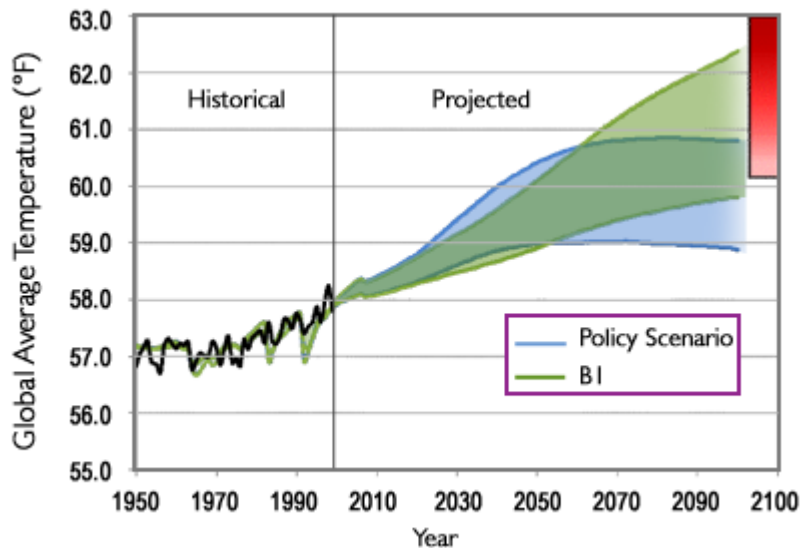
State Policy Initiatives

- In 2000, the California Greenhouse Gas Registry was established
- SB107 – Accelerated RPS Goals – 20% by 2010
- Global Warming Solutions Act (AB 32): reduce GHG emissions to 1990 levels by 2020.
- Legislation to reduce our dependence on petroleum
 - ❑ Low Carbon Fuels Standard
 - ❑ State Alternative Fuels Plan (AB 1007)
 - ❑ Bio-energy Action Plan
 - ❑ Alternative and Renewable Fuels and Vehicle Technology Program (AB 118)



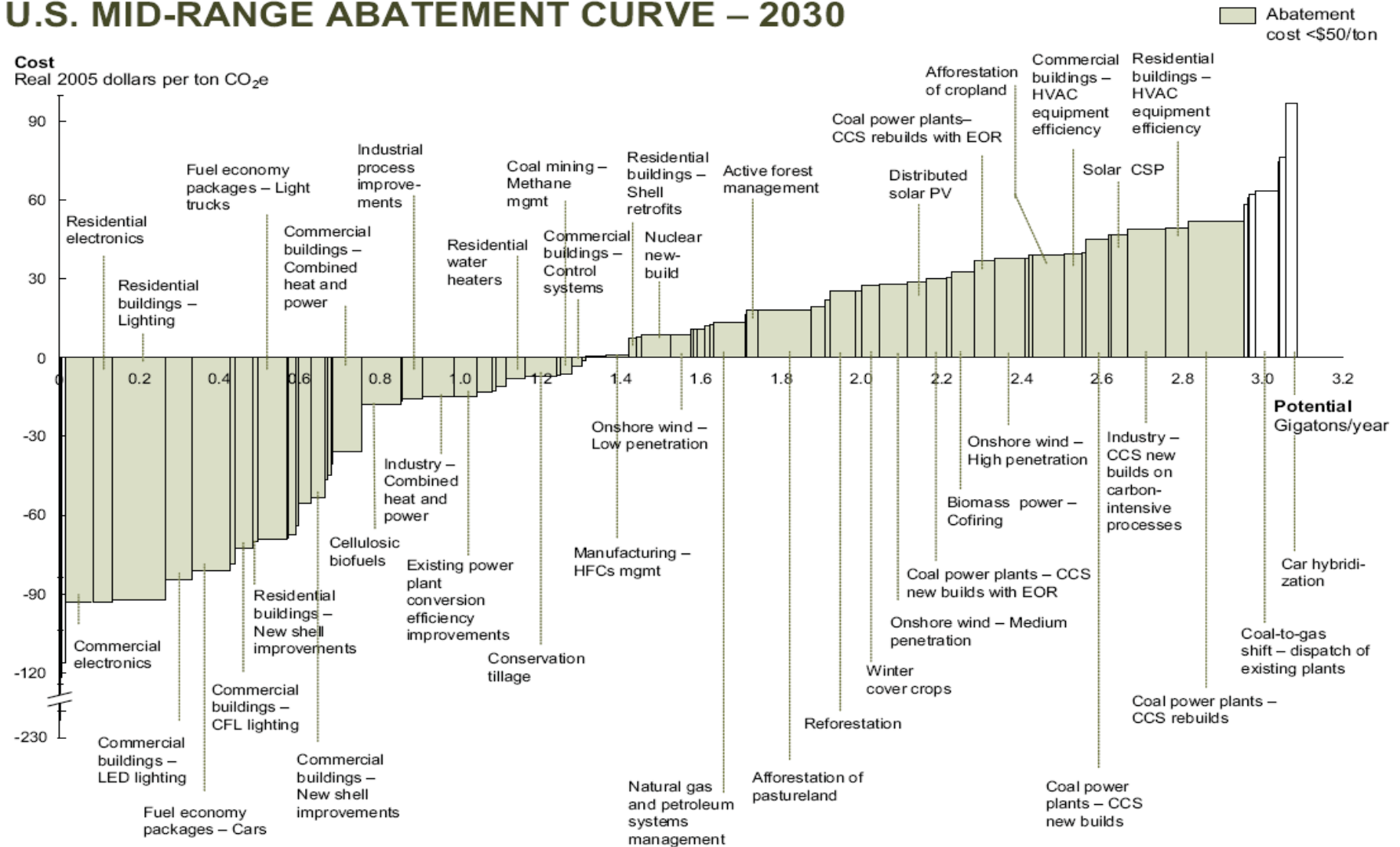
Preparing for the Future

- Mitigation – Avoiding the unmanageable
- Identify hazards – understanding the impacts
- Adaptation – Managing the unavoidable



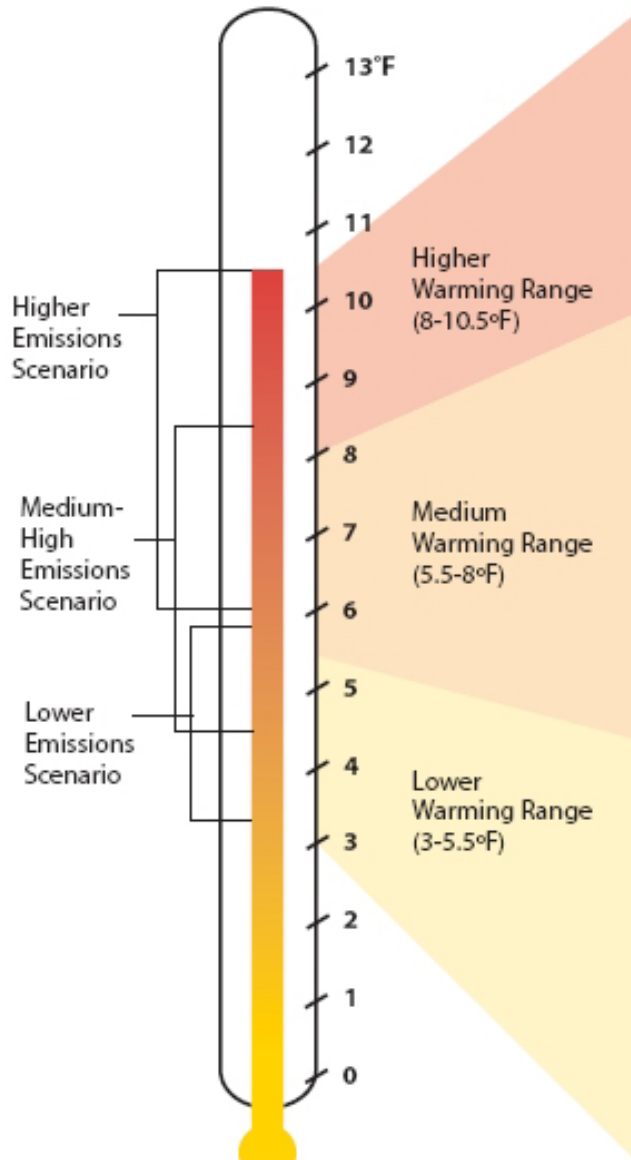
How will we achieve 2050 goals and what is the role of the Energy Sector?

U.S. MID-RANGE ABATEMENT CURVE – 2030



Source: McKinsey analysis

The Energy Sector is Vulnerable



- **20% Increase in energy demand**
- **3-4 Times as many heat wave days**
- **90% Loss in Sierra Snowpack**

- **10% Increase in electricity demand**
- **2.5–4 Times as many heat wave days**
- **70-80% Loss in Sierra snowpack**

- **3-6% Increase in electricity demand**
- **2-2.5 Times as many heat wave days**
- **30-60% Loss in Sierra snowpack**



Going Forward – Suggestions for Integrating Science and Policy

- Past interactions between the scientific community and policy makers have been extremely useful
- Mitigation and adaptation decisions should consider:
 - ❑ All relevant sectors
 - ❑ Organizations and individuals
 - ❑ Multiple scales
 - ❑ Different decision-making stages
 - ❑ Vulnerability hotspots
 - ❑ Potential social barriers to implementation
- Cross-sectoral and policy relevant research is critical for the future.



Thank You

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